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LETTER TO THE EDITOR

Acute transformation of chronic-type adult T-cell leukemia/lymphoma presenting with seizures

*Dear Editor,*

Adult T-cell leukemia/lymphoma (ATLL) is a peripheral T-cell neoplasm caused by human T-cell lymphotropic virus-I (HTLV-I). ATLL is classified into four clinical subtypes, including two aggressive (acute and lymphoma) and two indolent types (chronic and smoldering). Herein, we report the case of a Taiwanese patient with acute transformation of chronic ATLL presenting with seizures.

In February 2013, a 68-year-old man was brought to the emergency room after a generalized convulsion for 10 minutes and conscious loss. There was no fever or skin rash. His major diseases included recurrent urothelial carcinoma of the urinary bladder, pneumonia with respiratory failure, and diabetes mellitus. He was diagnosed with chronic-type ATLL in September 2012. At that time his hemogram showed the following measurements: white blood cell (WBC) count of 13,400/ μ L with 39% lymphocytes and some abnormal cells with irregular nuclear contours (Figure 1A), and hemoglobin level of 11.2 mg/dL (anemic). However, his platelet count was normal. His laboratory data were as follows: albumin level, 2.1 g/dL (lower than normal); blood urea nitrogen (BUN), 34 mg/dL (elevated from the normal level), elevated lactate dehydrogenase (LDH), normal calcium level, and positive anti-HTLV-I/II. Abdominal computed tomography was negative for hepatosplenomegaly or lymphadenopathy. Flow cytometry immunophenotyping showed that 70% of the lymphocytes were T cells expressing CD2, CD4, CD5, CD25, and T-cell receptor- α/β but not CD7 or CD8. These lymphocytes are clonal for TRG gene rearrangement.

At this current admission, hemogram showed WBC at 42,900/ μ L with 21% lymphocytes characterized by markedly irregular nuclear contours (flower cells; Figures 1B and 1C) and anemia (hemoglobin at 12.7 mg/dL). His calcium level was slightly elevated. Magnetic resonance imaging of the

brain revealed some scattered white matter patch lesions in the right high frontoparietal regions. Lumbar puncture revealed “flower cells” in the cerebrospinal fluid (Figure 1D). Neoplastic cells from both peripheral blood and cerebrospinal fluid were helper T cells having the same phenotype as the initial diagnostic specimen 5 months ago. Acute transformation of ATLL was diagnosed. The patient refused radiation therapy but underwent implantation of an Ommaya reservoir and received intrathecal chemotherapy with three doses of methotrexate. Unfortunately, the patient died of pneumonia and respiratory failure 1.5 months after the diagnosis of acute transformation.

Depending on the subtypes of ATLL, various treatment options are available including watchful waiting for indolent subtypes, intensive chemotherapy followed by allogeneic hematopoietic stem cell transplantation for the acute and lymphomatous subtypes, and a combination of interferon-alpha and zidovudine for cases with leukemic manifestation. Although chronic-type ATLL has long been considered as indolent, a recent long-term study showed that about half of the patients with chronic-type ATLL progressed to acute type within approximately 18 months from diagnosis and subsequent death [1]. Low serum albumin, elevated LDH, and elevated BUN levels were poor prognostic factors [1]. A very recent study using oligo-array comparative genomic hybridization and comprehensive gene expression profiling comparing acute-type ATLL cases with chronic-type ATLL suggested that cell-cycle deregulation and the immune escape mechanism might play important roles in the acute transformation of the chronic-type ATLL, indicating that these alterations are good predictive markers for chronic-type ATLL [2].

Taiwan is a country nonendemic for HTLV-I infection with only a few sporadic reports of ATLL and nearly no reports of indolent cases with acute transformation [3]. Our patient had all the three previously mentioned risk factors at the diagnosis of chronic-type ATLL, which might explain

Conflicts of interest: All authors declare no conflicts of interest.

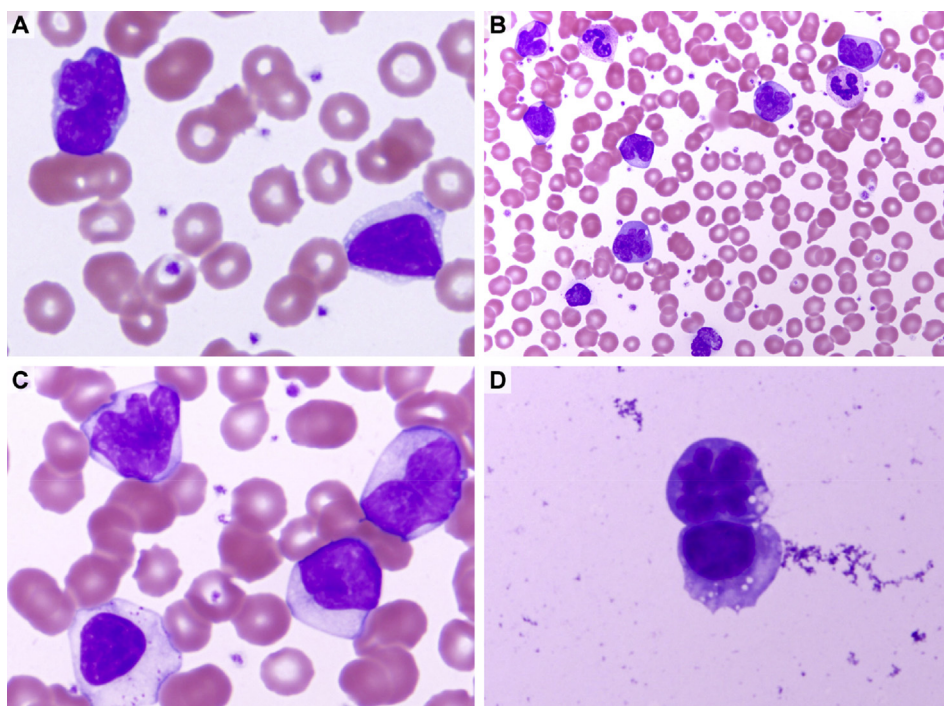


Figure 1. (A) Peripheral blood smear in 2012 showed scanty atypical lymphocytes with irregular nuclear contours (patient diagnosed as a case of chronic subtype). (B and C) Numerous flower cells in the peripheral blood in 2013 (progression to acute subtype). (D) Flower cells in the cerebrospinal fluid.

his rapid progression to the acute type. Acute transformation has been reported to be heralded by hemophagocytic syndrome or rapidly progressive pulmonary ground-glass attenuation and nodules [4,5]. In our patient, seizure was the presenting sign for acute transformation. The prognosis for lymphoma patients with central nervous system involvement is poor. Patients with chronic-type disease should be evaluated for risk factors, and chemotherapy might be considered for those with poor prognostic factors.

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